THE SECURITY DILEMMA
REVISITED

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R OBERT Jervis's article "Cooperation under the Security
Dilemma" is among the most important works in international re-
lations of the past few decades. In it, Jervis develops two essential ar-
guments. First, he explains that the security dilemma is the key to
understanding how in an anarchic international system states with fun-
damentally compatible goals still end up in competition and at war. The
security dilemma exists when "many of the means by which a state tries
to increase its security decrease the security of others."[1] It provides the
rational foundation for what Jervis termed the "spiral model," which
describes how the interaction between states that are seeking only se-
curity can fuel competition and strain political relations.[2] Second, Jervis
explains that the magnitude and nature of the security dilemma depend
on two variables: the offense-defense balance and offense-defense dif-
ferentiation.[3] As a result, the security dilemma can vary across space
and time. Although states exist in a condition of international anarchy
that does not vary, there can be significant variation in the attractive-
ness of cooperative or competitive means, the prospects for achieving a
high level of security, and the probability of war.

[1] Robert Jervis, "Cooperation under the Security Dilemma," *World Politics* 30 (January 1978), 169.
For earlier discussions of the security dilemma, see John H. Herz, "Idealist Internationalism and the
Security Dilemma," *World Politics* 2 (January 1950), which identifies the basic concept, but does not
develop it extensively; and Herbert Butterfield, *History and Human Relations* (London: Collins, 1951).

[2] Robert Jervis, *Perception and Misperception in International Politics* (Princeton: Princeton University
Press, 1976), chap. 3, esp. 62–76; these pages provide a more thorough discussion of the basic workings
of the security dilemma than does "Cooperation under the Security Dilemma." For an early discussion
of this type of interaction, see J. David Singer, "Threat-Perception and the Armament-Tension
Dilemma," *Journal of Conflict Resolution* 2 (March 1958); for a recent discussion, see Charles L. Glaser,
"Political Consequences of Military Strategy: Expanding and Refining the Spiral and Deterrence
Models," *World Politics* 44 (July 1992).

[3] Many similar arguments are developed by George Quester, *Offense and Defense in the International
System* (New York: Wiley, 1977). See also Marion William Boggs, *Attempts to Define and Limit "Ag-
gressive" Armament and Strategy* (Columbia: University of Missouri, 1941); and Marlies Ter Borg, "Re-
ducing Offensive Capabilities: The Attempt of 1932," *Journal of Peace Research* 29, no. 2 (1992).

These arguments laid the foundation for a major debate within realism, which is widely considered the dominant paradigm in international relations. As Jervis's analysis rests on the same basic assumptions—anarchy and fundamental compatibility of goals—that underlie structural realism, it should be viewed as part of this overall tradition. The broad implications of his argument are dramatically different from the standard structural-realist analysis, however, since the latter does not focus on the security dilemma and consequently envisions a consistently more competitive and dangerous world.[4] Although the debate over these formulations of structural realism has evolved since publication of Jervis's article, the matter is yet to be resolved.[5]

We can also appreciate the importance and impact of security dilemma and offense-defense arguments by recognizing that scholars have now employed these arguments effectively to address many of the most important questions of international relations theory and security policy, including the effectiveness of deterrence and reassurance,[6] sources of moderation in Soviet policy,[7] the severity of relative gains constraints,[8] alliance behavior,[9] military doctrine,[10] imperial expan-

[4] The major statement of the standard structural-realist analysis is Kenneth N. Waltz, *Theory of International Politics* (Reading, Mass.: Addison-Wesley, 1979); also important are idem, *Man, the State and War* (New York: Columbia University Press, 1959), esp. chaps. 6, 7; and idem, "Reflections on Theory of International Politics: A Response to My Critics," in Robert O. Keohane, ed., *Neorealism and Its Critics* (New York: Columbia University Press, 1986).

[5] See Charles L. Glaser, "Realists as Optimists: Cooperation as Self-Help," *International Security* 19 (Winter 1994–95); and Stephen Van Evera, *Causes of War*, vol. 1, *The Structure of Power and the Roots of War* (Ithaca, N.Y.: Cornell University Press, forthcoming).

[6] Although not framed in terms of the security dilemma, see, for example, Richard Ned Lebow and Janice Gross Stein, "Beyond Deterrence," *Journal of Social Issues* 43 (Winter 1987). See also Stein, "Deterrence and Reassurance," in Philip E. Tetlock et al., *Behavior, Society and Nuclear War*, vol. 2 (New York: Oxford University Press, 1991), esp. 17; this essay gives somewhat greater prominence to the security dilemma. On the more general question of resolving political rivalries, see Sean Lynn-Jones, "Rivalry and Rapprochement: Accommodation between Adversaries in International Politics" (Ph.D. diss., Harvard University, in process).

[7] Matthew Evangelista, "Sources of Moderation in Soviet Security Policy," in Tetlock et al. (fn. 6), esp. 290–96; and idem, "Cooperation Theory and Disarmament Negotiations in the 1950s," *World Politics* 42 (July 1990). On the Soviet use of concessions, see Deborah Welch Larson, "Crisis Prevention and the Austria State Treaty," *International Organization* 41 (Winter 1987).

[8] Robert Powell, "Absolute and Relative Gains in International Relations Theory," *American Political Science Review* 85 (December 1991); Powell casts the argument in terms of the costs of war, not in terms of the offense-defense balance. And see Glaser (fn. 5), 79.

[9] On balancing versus bandwagoning, see Stephen M. Walt, *The Origins of Alliances* (Ithaca, N.Y.: Cornell University Press, 1987), esp. 24–25, 165–67. On the tightness of alliances, see Thomas J. Christensen and Jack Snyder, "Chain Gangs and Passed Bucks: Predicting Alliance Patterns in Multipolarity," *International Organization* 44 (Spring 1990); and Thomas J. Christensen, "Perceptions and Allies in Europe, 1865–1940," *International Organization* 51 (Winter 1997); disagreeing is James D. Morrow, "Arms versus Allies: Trade-offs in the Search for Security," *International Organization* 47 (Spring 1993). On the alliance choices of small powers, see Karl Mueller, "Patterns of Alliance: Alignment Balancing and Stability in Eastern Europe," *Security Studies* 5 (Autumn 1995).

[10] Barry R. Posen, *The Sources of Military Doctrine: France, Britain and Germany between the World Wars* (Ithaca, N.Y.: Cornell University Press, 1984), esp. 67, 74, 221–22, 236–39; Jack Snyder, *The*

sion,[11] revolution and war,[12] ethnic conflict,[13] conventional arms control,[14] U.S. nuclear policy and arms control,[15] nuclear proliferation,[16] the escalatory dangers of conventional war,[17] U.S. grand strategy,[18] and the prospects for peace in Europe and policies for preserving it.[19] Limitations of space unfortunately preclude an examination here of the ways in which security dilemma and offense-defense arguments are used in this literature.

The first sections of this article recapitulate Jervis's basic arguments, discuss work that has added to these arguments, and offer clarifications and further extensions. Although the security dilemma is referred to quite frequently, relatively little effort has been devoted to examining its core logic, some of which was left incomplete by Jervis himself. The most important gaps concern whether and how the security dilemma operates between rational actors. Consequently, I explore three ways in which a state's efforts to increase its security when facing a security dilemma can, without states suffering misperceptions, generate undesirable outcomes.

Ideology of the Offensive (Ithaca, N.Y.: Cornell University Press, 1984); for disagreements, see Scott D. Sagan, "1914 Revisited: Allies, Offense and Instability," *International Security* 11 (Fall 1986); the correspondence between Sagan and Snyder, *International Security* 11 (Winter 1986–87); and Elizabeth Kier, "Culture and Military Doctrine: France between the Wars," *International Security* 19 (Spring 1995).

[11] Jack Snyder, *Myths of Empire: Domestic Politics and International Ambition* (Ithaca, N.Y.: Cornell University Press, 1991), 21–26.

[12] Stephen M. Walt, *Revolutions and War* (Ithaca, N.Y.: Cornell University Press, 1996), esp. 33–45, 334–38.

[13] Barry R. Posen, "The Security Dilemma in Ethnic Conflict," *Survival* 35 (Spring 1993); and Chaim Kaufmann, "Possible and Impossible Solutions to Ethnic Civil Wars," *International Security* 20 (Spring 1996).

[14] Jack Snyder, "Limiting Offensive Conventional Forces: Soviet Proposals and Western Options," *International Security* 12 (Spring 1988), esp. 67–71; see also Stephen Duane Biddle, "The Determinants of Offensiveness and Defensiveness in Conventional Land Warfare" (Ph.D. diss., Harvard University, 1992). Following the basic approach of offense-defense theory, although apparently not directly influenced by it, is the nonprovocative defense literature. See, for example, the special issue of the *Bulletin of the Atomic Scientists* 44 (September 1988); and Anders Boserup and Robert Neild, *The Foundations of Defensive Defense* (New York: St. Martin's, 1990).

[15] Charles L. Glaser, *Analyzing Strategic Nuclear Policy* (Princeton: Princeton University Press, 1990).

[16] Shai Feldman, *Israeli Nuclear Deterrence: A Strategy for the 1980s* (New York: Columbia University Press, 1982).

[17] Barry R. Posen, "Inadvertent Nuclear War? Escalation and NATO's Northern Flank," *International Security* 7 (Fall 1982); and idem, *Inadvertent Escalation: Conventional War and Nuclear Risks* (Ithaca, N.Y.: Cornell University Press, 1992). Offering a different explanation is Jeffrey W. Legro, "Military Culture and Inadvertent Escalation in World War II," *International Security* 18 (Spring 1994).

[18] Stephen M. Walt, "The Case for Finite Containment: Analyzing U.S. Grand Strategy," *International Security* 14 (Summer 1989), esp. 22–30.

[19] Stephen Van Evera, "Primed for Peace: Europe after the Cold War," *International Security* 15 (Winter 1990–91), esp. 11–17; Ted Hopf, "Managing Soviet Disintegration: A Demand for Behavioral Regimes," *International Security* 17 (Summer 1992); Charles A. Kupchan and Clifford A. Kupchan, "Concerts, Collective Security, and the Future of Europe," *International Security* 16 (Summer 1991), esp. 133–37; and Charles L. Glaser, "Why NATO Is Still Best: Future Security Structures for Europe," *International Security* 18 (Summer 1993), esp. 26–33, 38–47.

The following section argues that two additional variables—the extent of the adversary's greed (that is, motives beyond security) and of the adversary's unit-level knowledge of the state's motives—influence the magnitude of the security dilemma. Thus, whether a theory posits only security seekers or instead posits some greedy states is a pivotal choice. In the latter case, the role of the security dilemma is diminished and competitive policies are more likely to avoid conflict. Whether states can rely on unit-level information about others' motives can have equally important implications, enabling a state to be secure when it would otherwise be insecure, which in some cases supports more cooperative policies and in other cases more competitive ones. By considering these variables, one also integrates the security dilemma into broader debates over international relations theory and security policy. These variables, for example, establish the divide between the spiral model and what Jervis termed the "deterrence model," which applies to secure greedy states and therefore rejects the security dilemma.

The final section addresses basic criticisms of the security dilemma and offense-defense theory, including (1) the empirical claim that greedy states, not the security dilemma, are the main source of international conflict; (2) the security dilemma does not really exist, because its internal logic is flawed, or because its constraints are always overwhelmed by other considerations, or because states construct the security dilemma and therefore can choose not to; and (3) offense-defense theory is flawed. I argue that the greedy-states criticism poses a serious challenge but that the others are based on incomplete or flawed analysis.

THE SECURITY DILEMMA: HOW DOES IT LEAD TO UNDESIRABLE OUTCOMES?

Jervis defines the security dilemma as a situation in which "the means by which a state tries to increase its security decrease the security of others." This definition by itself does not make clear why the security dilemma is a problem, however: if states value their own security but not the security of others, why would an action that makes one's adversary less secure necessarily be bad? The most obvious reason is that the adversary is likely to react to having its security reduced. And by the same logic the adversary's reaction will in turn reduce the state's security. But why does not this action-reaction process simply leave the state's security unchanged, since the adversary's reaction could just offset the state's action?

This section identifies three distinct ways in which making one's adversary less secure can be self-defeating, leaving the state worse off than

before its initial action: (1) by setting in motion a process that reduces the state's own military capability, that is, its ability to perform military missions; (2) by increasing the value the adversary places on expansion, which makes it harder to deter; and (3) by simply wasting money. Although Jervis touches on each of these possibilities, he does not fully explain how the first two could happen without misperceptions. Thus, although he stresses that the "heart of the security dilemma" stems from "the anarchic context of international relations," Jervis leaves some key arguments underdeveloped.[20] The following discussion is intended to close some of these gaps. This section ends with a brief discussion of why states sometimes cannot avoid these undesirable outcomes.

By further developing these arguments I do not mean to imply that misperceptions are unimportant. Whether or not states suffer from significant misperceptions, we need to analyze how a rational state would act if we are to determine how much of a state's insecurity is really the product of the conditions it faces and how much worse relations become when misperceptions do occur.

REDUCING THE STATE'S MILITARY CAPABILITY

The idea that arming could reduce capabilities might seem self-contradictory, but the issue is one of terminology. I use "military capability" to refer specifically to the state's ability to perform military missions, not to the size of its forces or its total military assets.[21] Thus, an action-reaction process will leave the state with more military assets, but it may nevertheless reduce its military capability vis-à-vis its adversary.

Because of the security dilemma, when the state arms, it makes its adversary less secure by reducing the adversary's ability to defend itself. The adversary then buys additional arms in order to restore its military capability.[22] At first glance, it might appear that the net effect of this action-reaction process would be to leave both countries' military capabilities unchanged, since each country's additional forces would simply offset the other's.[23]

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[20] Jervis (fn. 2), 76.

[21] On the advantages of this usage of "capability," see Glenn H. Snyder, "Process Variables in Neorealist Theory," *Security Studies* 5 (Spring 1996), 180–83.

[22] For the sake of simplicity, I will focus on the decision to buy arms. However, the logic of the security dilemma is more general, including the decision to take territory and to acquire allies to increase security. Regarding territory, an action-reaction process could be expansion into part of a buffer zone that leads one's adversary to expand into the remainder of the zone.

[23] Jervis (fn. 2), 64, says that such an action-reaction process results in reduced security because "when states seek the ability to defend themselves, they get too much and too little . . . too little because others, being menaced, will increase their own arms and so reduce the first state's security." However, this explains only why the state's security is reduced relative to the situation following its initial buildup, but not why it should be reduced relative to the prior military status quo.

In fact, however, when the action-reaction process shifts the offense-defense balance, the result is instead a change—a decrease or an increase—in military capabilities. If the state deploys a new weapons system that favors offensive missions and if its adversary responds by deploying this system, the country's ability to defend itself will be reduced, leaving it less secure than before this round of arming. MIRVed missiles are usually considered to be this type of offensive innovation, reducing the ease with which the United States and the Soviet Union could meet their requirements for deterrence. If, however, the state deploys an innovation that favors defensive missions and its adversary matches it, then the net result would be an increase in the state's capability to defend itself and an increase in its security. The precision-guided munitions (PGMs) deployed on the Central Front during the cold war appear to have been such an innovation.[24]

The ability to perform offensive and defensive missions can also vary with force size.[25] Thus, action-reaction processes that result in larger forces (as distinguished from different types of forces) can increase or decrease the state's military capability for defense. For example, equal increases in the size of conventional ground forces can result in an increase in a state's ability to defend, by enabling it to increase the density of forces deployed along the front. Similarly, equal increases in the size of nuclear forces can increase both countries' retaliatory capabilities, thereby enhancing their deterrent capabilities. In such cases, an action-reaction process increases security.

Appreciation of the possibility that arms competition can reduce both countries' military capabilities precedes Jervis's work on the security dilemma. In fact, the complementary observation that adversaries can have a mutual interest in reciprocating arms restraint is one of the core insights of modern arms control theory, which was developed in the late 1950s and the early 1960s.[26] Setting this insight within the broader framework of the security dilemma, however, highlights an important issue that arms control theory tends to gloss over—the compatibility of the intrinsic goals of the states involved. The security dilemma makes explicit the possibility that both states in the competition are interested only in security, and it deepens our understanding of how this compe-

[24] John J. Mearsheimer, *Conventional Deterrence* (Ithaca, N.Y.: Cornell University Press, 1983), chap. 7.

[25] This possibility is discussed in Chaim Kaufmann and Charles Glaser, "What Is the Offense-Defense Balance and Can We Measure It?" *International Security* (forthcoming).

[26] See, for example, Thomas C. Schelling and Morton H. Halperin, *Strategy and Arms Control* (New York: Twentieth Century Fund, 1961), esp. 1–2.

tition can arise. In addition, Jervis lays the groundwork for more recent work by framing the problem of cooperation in terms of Prisoners' Dilemma and Stag Hunt game-theory matrices and exploring how the prospects for cooperation vary with changes in the relative size of countries' payoffs (pp. 170–83).[27] In more recent years, cooperation theorists have used game theory to establish a more rigorous foundation for the core findings of arms control theory; they frequently use the repeated Prisoners' Dilemma to model arms competition.[28]

MAKING ONE'S ADVERSARY LESS SECURE, WHICH INCREASES THE VALUE IT PLACES ON EXPANSION

THE DANGER OF THE ADVERSARY'S INSECURITY

Reducing an adversary's security can reduce the state's own security in a second way—by increasing the value the adversary places on expansion, thereby making it harder to deter. Making an adversary more insecure will often increase its interest in expansion, since expansion can often increase security. For example, a more insecure adversary will find expansion more desirable when it can provide more secure borders, strategic depth, or control of resources that are valuable for building military capabilities.[29]

Consequently, even when arming increases a state's military capability, the net result could be a reduction in its security. On the one hand, the state will enjoy the enhanced deterrent and defense capabilities provided by its improved military capability. On the other hand, because the adversary is now harder to deter, it may not be deterred by these enhanced capabilities, even if it would previously have been deterred by less effective military capabilities.

Thus, states that can achieve military advantages should not always seek them. There is no general answer to whether sustainable military

[27] For earlier use of game theory to explore the different motives that can lead to arms competition and cooperation, see Thomas C. Schelling, "A Framework for the Evaluation of Arms-Control Proposals," *Daedalus* 104 (Summer 1975). While remaining positive about the potential contribution of game-theoretic formulations, Jervis explores their shortcomings in "Realism, Game Theory, and Cooperation," *World Politics* 40 (April 1988).

[28] Robert Axelrod, *The Evolution of Cooperation* (New York: Basic Books, 1984). For a focus on questions of arming, see George W. Downs, David M. Rocke, and Randolph M. Siverson, "Arms Races and Cooperation," in Kenneth A. Oye, ed., *Cooperation under Anarchy* (Princeton: Princeton University Press, 1986).

[29] Jervis (fn. 1), 168–69. Although Jervis identifies this phenomenon as being separate from the security dilemma, I describe it as an integral part of the security dilemma. On the resource value of territory, see Peter Liberman, "The Spoils of Conquest," *International Security* 18 (Fall 1993); and idem, *Does Conquest Pay? The Exploitation of Occupied Industrial Societies* (Princeton: Princeton University Press, 1996).

advantages that leave one's adversary less secure will increase or decrease the state's security, but policy analyses that grapple with this trade-off find that sometimes cooperation or restraint is preferable to more competitive policies. In the current debate over NATO expansion, for example, opponents argue that even though expansion into Central Europe would increase NATO's military capability, it would also increase Russian insecurity and therefore make Russian invasion of its neighbors more likely.[30]

ACTIONS THAT REDUCE AN ADVERSARY'S SECURITY: SIGNALING OF MOTIVES

A state's military buildup can make its adversary less secure in two ways. First, and more straightforward, the state's buildup can reduce the adversary's ability to defend itself. Even if the adversary matches the state's initial buildup, the net result could be a reduction in its military capability, as described above. It is also possible that the adversary will end up less capable of defense because it is unable to match or counter the state's buildup.

Second, a state's military buildup can change the adversary's beliefs about the state's motives, convincing the adversary that the state is inherently more dangerous than it had previously believed. More specifically, the state's buildup could increase the adversary's assessment of the extent to which it is motivated by the desire to expand for reasons other than security,[31] which I will term greed.[32] This type of action-reaction process is the focus of the spiral model, in which countries that are seeking only security conclude that their adversary's motives are more malign, that is, greedier, than previously believed.[33] Although misperceptions can make spirals more intense, Jervis, as already noted, stresses that both the security dilemma and the spiral model have a rational foundation.[34]

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[30] See, for example, Michael E. Brown, "The Flawed Logic of NATO Expansion," *Survival* 37 (Spring 1995). For a security dilemma–based argument against nuclear superiority, see Glaser (fn. 15), chap. 5.

[31] The adversary could also become less secure if it concludes that the state places a higher value on security or demands a higher level of security, both of which could make the state harder to deter. For simplicity, I focus on the adversary's assessment of the state's greed.

[32] I use the term "greedy" because states can be motivated to expand for two fundamentally different types of reasons—security and greed—which are blurred by the more common terms "expansionist" and "aggressive." Four types of states can be defined in terms of greed and security seeking; see Glaser (fn. 2), 501–3. In referring to states as greedy, I do not mean to imply that they do not also seek security.

[33] Jervis (fn. 2), chap. 3, esp. 62–76. See also Glenn Snyder, "The Security Dilemma in Alliance Politics," *World Politics* 36 (July 1984), 468–70; Snyder argues that firm alliance policies can generate reactions that are comparable to a spiral generated by an arms buildup.

[34] In addition to the passage cited in fn. 20, see, for example, Jervis (fn. 2), 62.

Nonetheless, the possibility of a rational spiral presents something of a puzzle. How could the arms policy of a rational state that seeks only security convince its adversary, based on logically sound inferences, that the state is more dangerous than was previously believed? The answer is not obvious because, for the following reasons, the adversary will understand that an arms buildup may be motivated by security, not greed. Recognizing that the state does not know its motives, the adversary will appreciate the state's desire for adequate defense capabilities, which could require more or improved armed forces. In addition, appreciating the security dilemma, the adversary will understand that forces that the state requires for increased security could reduce its own security. A rational adversary will therefore have reasons to expect a pure security seeker to engage in a threatening arms buildup and consequently will not automatically conclude that such a buildup reflects greedy motives.

The question then is, when does a state's military buildup signal greedy motives? A common, although incorrect, claim is that structural theories do not allow states to know anything about the motives of others, since they are unobservable. But this claim overlooks the possibility that certain actions can communicate valuable information because they are not equally likely to be taken by a greedy state and a pure security seeker. Therefore, for example, when a state launches a military buildup that is more likely to be taken by a greedy state than by a pure security seeker, an adversary that is making sound inferences will update its assessment of the state's motives, concluding that the state is more likely than previously believed to be greedy.[35]

Two types of military buildups could help with this kind of differentiation. In the first type, different types of states prefer different size forces: a greedy state is more likely than a security seeker to add forces beyond those required for adequate defense of its territory. Even though extra forces would provide some additional capability to defend, a state interested only in security would see less value in these forces than would a greedy state and therefore would be less willing to pay for them. In the second type of buildup, states prefer different types of forces. For example, when a state has a choice between forces that add roughly equally to offensive military missions and defensive ones, a greedy state is more likely than a security seeker to choose the type of

[35] On signaling, see Robert Jervis, *The Logic of Images in International Relations* (Princeton: Princeton University Press, 1970); and James D. Fearon, "Threats to Use Force: The Role of Costly Signals in International Crises" (Ph.D. diss., University of California, Berkeley, 1992).

forces that improve its offense.[36] The greedy state sees both greater value in offense and sometimes less value in not provoking others, since it anticipates conflict anyway.

The question that remains is, can an adversary that makes logically sound inferences nevertheless reach incorrect conclusions about the state's goals?[37] For the interaction between pure security seekers to produce the increasing fear and insecurity explained by a rational spiral model, the answer must be yes. Otherwise, misperceptions would be required to generate a spiral.

This type of interaction can occur if the states are uncertain about the size or type of forces required to maintain a given level of security. Given this uncertainty, consider the simple case in which some pure security seekers would be satisfied with a lower level of forces and some with a higher level, but all greedy states would require a higher level. A pure security seeker that builds to the higher level will then convince its adversary that it is more likely to be greedy, since only some security seekers but all greedy states would build to this level. Similar interactions can occur if there is uncertainty about whether security seekers require offensive capabilities and if there is uncertainty about the level of security that security seekers believe is adequate.[38]

A spiral can also result from an adversary's uncertainty about the state's understanding of its motives. For example, when the adversary believes that the state believes there is only a small probability that the adversary is greedy and, therefore, that the state does not fear it, the adversary will conclude that the state's buildup is largely unnecessary for security and therefore that the state is likely to be motivated by greed. If the adversary's initial estimate of the probability that the state is fearful is too low, then this increase in its assessment that the state is greedy will be too large, resulting in a spiral. Kydd's formal analysis of this interaction shows that under a wide range of conditions a rational adversary will find the state's buildup to be provocative and that updating of beliefs is sensitive to prior expectations about the state's motives.[39]

[36] This is an oversimplification, however, since a pure security seeker might want the capability to take territory for a variety of reasons. See fn. 57 below for qualifications.

[37] Although Jervis identifies the types of buildups, he does not really explain how rational states can spiral; Jervis (fn. 1), 199–201. He notes that states often cannot accurately infer motives from others' military forces and therefore they tend to assume the worst; Jervis (fn. 2), 64–65. This would clearly generate increased hostility, but the judgment is logically flawed, since without additional information states' assessments should remain unchanged. Moreover, states should not assume the worst in the face of uncertainty, since this can support policies that are too competitive/provocative.

[38] For discussion of related issues concerning subjective security requirements, see Jervis (fn. 1), 174–76.

[39] Andrew Kydd, "Game Theory and the Spiral Model," *World Politics* 49 (April 1997). Kydd notes (p. 373) that Jervis explores this dynamic for the extreme cases in which bias leads the adversary to

The logic of these signaling arguments also works in the opposite direction—a state can sometimes use restraint in building military forces to reduce the adversary's concern about its greediness.[40] A greedy state wants to mislead its adversaries into believing that it is interested only in security, since its adversaries would then be more likely to pursue policies that leave them vulnerable. Given these incentives for a greedy state to misrepresent its motives, a security seeker can communicate information about its motives only by adopting a policy that would be less costly for it than for a greedy state.

Depending on the conditions they face, states can try to communicate their benign intentions via three types of military policies.[41] First, arms control agreements that limit both countries' current or future ability to perform offensive missions communicate a lack of greed, since a greedy state sees greater value in offensive missions than does a pure security seeker. Second, a state may be able to adopt unilateral defense, choosing to protect its country with a defensive doctrine, even if its adversary continues to pursue an offensive one. When offense has the advantage, maintaining its security via unilateral defense will require the state to outspend its adversary, which reinforces the message that its motives are benign. Finally, a state can exercise unilateral restraint, that is, reduce its military capability below what it would choose for adequate deterrence and defense were it not considering the effects of signaling. One use of unilateral restraint is primarily tactical—to set in motion a process of reciprocated restraint.[42] Even if not reciprocated, however, unilateral restraint can succeed by communicating that the state is not greedy and is committed to improving relations. Thus, although the state's ability to defend is reduced, the net effect can be an increase in its security. There is, however, the danger that the adversary will misinterpret the state's restraint, seeing a lack of resolve instead of a lack greed; in this case, restraint encourages the adversary to challenge the state. The dual dangers of military shortfalls and underestimates of their resolve make states reluctant to pursue ambitious policies of unilateral restraint.

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assume the state is definitely secure. For pure security seekers, however, all that is necessary to generate a spiral is for the adversary to believe there is some possibility that the state is secure. See also George W. Downs and David M. Rocke, *Tacit Bargaining, Arms Races, and Arms Control* (Ann Arbor: University of Michigan Press, 1990), chap. 4.

[40] Kydd (fn. 39) provides a formal treatment.

[41] Glaser (fn. 5), 67–70; and idem (fn. 2), 526–33; for related points, see Downs, Rocke, and Siverson (fn. 28). On reassurance more generally, see Stein (fn. 6); on the inhibiting effect of appearing weak, see James D. Morrow, "Signaling Difficulties with Linkage in Crisis Bargaining," *International Studies Quarterly* 36 (June 1996).

[42] This approach, often referred to as GRIT, was developed by Charles E. Osgood, *An Alternative to War or Surrender* (Urbana: University of Illinois, 1962).

MISPERCEPTIONS

In contrast to the rational updating we have considered so far, Jervis also discusses the role of psychological biases in contributing to states' overly hostile assessments of others' actions.[43] More recent work has focused on bureaucratic and domestic political processes as alternative sources of bias.

Statesmen who do not understand the security dilemma and therefore do a poor job of appreciating the choices faced by their adversary will infer incorrectly that the adversary's buildup reflects greedy motives. A state is likely to make errors that build on each other: a key initial mistake is for a state to assume that others know it is interested only in security; the state is then likely to assume that others will not be threatened by its buildup. Consequently, the state is inclined to see the adversary's arms buildup as a sign of greed, when in fact the adversary is building in response to the state's buildup. This is a distorted form of the rational spiral, described above, which is driven entirely by uncertainty about motives; when this bias prevails, states will be more insecure and competition will be more intense than is predicted by a rational security dilemma.

Attribution theory offers a psychological explanation for this type of flawed reasoning.[44] Leaders commonly make the mistake of interpreting the behavior of other countries in terms of their goals/motives, even though they understand their own behavior differently, in terms of the situation they face. As a result, leaders fail to appreciate that other countries face a security dilemma and therefore interpret the actions of others as reflecting greed, even though a pure security seeker might have acted the same way.

Recent work on misperceptions provides alternative explanations, locating these analytic flaws at the level of the state instead of at the level of the individual. This work uses theories of organizational behavior and domestic political dynamics to explain why states often exaggerate an adversary's hostility.[45] Militaries are inclined to exaggerate the offensive potential of the adversary's forces and to impute malign intentions, even when the purposes of the adversary's forces are ambiguous.

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[43] Misperception receives far less discussion in "Cooperation under the Security Dilemma" (but see pp. 181–83) than in Jervis (fn. 2), 67–76.

[44] On attribution theory, see Jervis (fn. 2), esp. 35–48; Deborah Welch Larson, *Origins of Containment: A Psychological Explanation* (Princeton: Princeton University Press, 1985), esp. 34–42; and Jonathan Mercer, *Reputation and International Politics* (Ithaca, N.Y.: Cornell University Press, 1996).

[45] For an emphasis on organizational perspectives, see Stephen Van Evera, "Causes of War" (Ph.D. diss., University of California, Berkeley, 1984), pt. 2; and Snyder (fn. 10). Snyder (fn. 11) emphasizes domestic political dynamics.

Powerful interest groups that would benefit from military competition or expansion often advance self-serving strategic arguments that exaggerate the threat posed by the adversary's capabilities or motives. Furthermore, states are inclined to create myths about the unthreatening nature of their own behavior, which makes adversaries appear still more dangerous.[46]

In sum, through rational updating a state's military buildup (or restraint) can lead an adversary to alter its assessment of the state's motives. Research on misperceptions cautions that states are inclined to do a poor job of updating, with a bias toward exaggerating the hostility of others. When they suffer from these biases, states will act as though the security dilemma is more severe than it actually is.

SIMPLY WASTES MONEY

The third way in which efforts to make oneself more secure can be self-defeating is by simply wasting money. Unlike the first two cases, the state would not end up less secure for having pursued a policy that initially made its adversary less secure. In this case, the action-reaction process does not reduce the state's military capability; as we have seen, action-reaction processes could leave the state's ability to defend itself unchanged. Nor does the action-reaction generate a spiral of increasingly negative views of the adversary's motives, which is possible since not all military buildups provide information about motives. Nevertheless, the security dilemma results in self-defeating efforts that leave the state less prosperous, yet no more secure.[47]

WHY CAN'T STATES COOPERATE TO AVOID
LESS DESIRABLE OUTCOMES?

When arming and engaging in competitive policies more generally would be self-defeating, why cannot rational states cooperate to avoid undesirable outcomes? Jervis's formulation of international relations under anarchy as a Stag Hunt raises this question starkly, since cooperation would then be the best option for both countries.[48]

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[46] Van Evera (fn. 45), chap. 8; and idem, "Why States Believe Foolish Ideas: Non-Self-Evaluation by Government and Society" (Paper presented at the annual meeting of the American Political Science Association, Washington, D.C., 1988).

[47] Snyder (fn. 33), 461, emphasizes wasted resources; he argues (p. 462) that alliance formation is similar to arming, in that all states would be better off remaining outside an alliance; action and reaction nevertheless generate alliance blocks that are costly but fail to increase security.

[48] On Stag Hunt and related games, see Kenneth A. Oye, "Explaining Cooperation under Anarchy: Hypotheses and Strategies," in Oye (fn. 28).

The core of the answer lies in appreciating that states are uncertain about their adversaries' motives, lacking confidence that others are pure security seekers. Uncertainty about motives means that states cannot be confident that they are in a Stag Hunt, even if they are. This uncertainty about the type of game can make competition/arming the state's best option. Jervis takes a different view, identifying different sources of competition when in a Stag Hunt—misperceptions and irrational behavior (p. 168). Important as misperceptions and irrational behavior can be, however, these are additions to the basic story.[49] From the perspective of structural realism and the emphasis it places on the implications of anarchy, uncertainty about the adversary—both its motives and its understanding of one's own motives—is the fundamental ingredient for understanding competition.[50] This subsection describes a simple game-theory model of how uncertainty about the adversary could reduce the prospects for productive cooperation.

It is useful to begin by considering why two security seekers might be in a Stag Hunt.[51] On the one hand, a pure security seeker that is confident of not being attacked has no reason to expand: it is satisfied with the territory it controls and does not see instrumental value in additional territory, because it does not fear attack. It could prefer the territorial status quo (CC) to unopposed expansion (DC) for a variety of reasons, including how costly it is to govern the additional territory or because expansion violates an international norm that the state values. Because the state values its own territory, it could prefer fighting to protect its territory (DD) to allowing its adversary to expand unopposed (CD). If two pure security seekers have these preferences and this is common knowledge, then they are in a Stag Hunt and both countries should optimally choose to cooperate.

On the other hand, a state that is unsure whether its adversary is a pure security seeker faces a very different situation. A greedy adversary will prefer unopposed expansion to the territorial status quo; it has Prisoners' Dilemma preferences. Even if the state's own preference ordering remains unchanged,[52] its preferred option in light of this adversary's expected behavior is competition.

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[49] For discussion of their impact on a Stag Hunt, see Downs, Rocke, and Siverson (fn. 28), 134–37.

[50] In addition, a type of uncertainty that is not explored in the text is also important—uncertainty about whether an adversary will become greedier. This uncertainty cannot be eliminated because leaders cannot bind themselves and their successors to current goals; see Jervis (fn. 1), 168.

[51] Although my discussion focuses on competition over territory, a parallel analysis can be developed for arms competition.

[52] If facing a greedy adversary, however, a pure security seeker would now see instrumental value in expansion, if this would increase its security. The state would then have Prisoners' Dilemma

If the state is unsure about the type of adversary it faces, then it is uncertain about which game it is in. The state should therefore weigh its payoffs for cooperation and competition by its estimate of whether the adversary is greedy or a pure security seeker.[53] Competition is more attractive the higher the state's estimate that the adversary is greedy.

OFFENSE-DEFENSE VARIABLES: VARIATION IN THE SECURITY DILEMMA

Jervis's second major contribution is his explanation of how the magnitude and nature of the security dilemma depend on two variables—the offense-defense balance and offense-defense differentiation. In considering how these variables influence state behavior, he generates a variety of hypotheses, including most prominently hypotheses about the pressures for competition, the prospects for international cooperation, and the probability of war.

Jervis defines the offense-defense balance in terms of the ease of taking territory compared with the ease of holding territory when attacked: the advantage of defense increases with the ease of holding territory (p. 187). He then proposes a way of measuring the relative ease of offense and defense: "Does the state have to spend more or less than one dollar on defensive forces to offset each dollar spent by the other side on forces that could be used to attack?" (p. 188).

The severity of the security dilemma decreases as the offense-defense balance shifts toward greater defense advantage. When defense has the advantage, the forces deployed by a status quo power will increase its security more than they decrease the adversary's security. Both states will achieve reasonable levels of security from action and reaction cycles, and arms races will peter out. When the advantage of defense is sufficiently great, "aggression will be next to impossible, thus rendering international anarchy relatively unimportant" (p. 187).

By contrast, when offense has the advantage, it is impossible for states of equal size to enjoy high levels of security simultaneously; arms races will be intense because when one country adds forces, its adver-

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preferences instead of Stag Hunt preferences. In addition, the state would see a higher payoff for war, if war held some prospect of successful expansion or of leaving the adversary relatively weaker, which makes competition more attractive.

Some of my game-theory colleagues object to this formulation, on the grounds that payoffs should be fixed and not vary with the type of adversary. A more adequate formulation requires a multiperiod game.

[53] Consequently, the relative size of payoffs matters. Jervis devotes much of "Cooperation under the Security Dilemma" to exploring factors that influence payoffs. Offense-defense variables are among the most important and are discussed in the following section.

sary will have to make a larger addition to restore its ability to defend.[54] Jervis argues that offense advantage makes war more likely for a variety of reasons. (1) War will be quick and decisive and therefore profitable, so greedy states will find war more attractive. (2) Following the basic logic of the security dilemma, states will be more insecure, making expansion more valuable, which makes war more attractive to states seeking security. (3) The advantage of striking first grows with offense advantage, which increases the probability of crises escalating via preemptive attacks and accidents.[55] (4) Because wars are likely, arms races will be still more intense, increasing their danger. Offense advantage also influences diplomacy, forcing states to form alliances during peacetime, since wars will be decided too quickly to allow the effective formation of alliances once fighting has started.[56]

The second key variable that influences the security dilemma is the extent to which offense and defense are differentiated, that is, "whether weapons and policies that protect the state also provide the capability for attack" (p. 199). Offense-defense differentiation has the potential virtually to eliminate the security dilemma: if completely differentiated, a country can then deploy forces that are useful only for protecting its territory, which does not reduce its adversary's ability to defend itself. Moreover, offense-defense differentiation enables a country to signal its type, since only a country that wants to take territory will buy forces that have offensive potential.[57] Pure security seekers can therefore reduce concern about whether they harbor greedy motives, which in turn increases their own security. The differentiation of offense and defense makes possible arms control agreements that ban weapons that are useful for offensive missions, thereby increasing both countries' ability to defend.[58]

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[54] For related analysis, see Malcolm W. Hoag, "On Stability in Deterrent Races," *World Politics* 13 (July 1961).

[55] On the relationship between first-strike advantages, preemption, and accidents, see Schelling and Halperin (fn. 26), 14–16.

[56] See also Quester (fn. 3), 105–6.

[57] As Jervis (fn. 1) notes, this is an overstatement (pp. 201–2). A pure security seeker might buy offense for a number of reasons: (1) if offense has a great advantage over defense; (2) if the state has extended deterrence commitments; (3) because offense may be necessary to regain territory lost at the beginning of a war; and (4) because the threat of counteroffense can enhance deterrence. On extended deterrence, see Stephen W. Van Evera, "Offense, Defense and Strategy: When Is Offense Best?" (Paper presented at the annual meeting of the American Political Science Association, Chicago, September 1987). On counteroffense, see Samuel P. Huntington, "Convention Deterrence and Conventional Retaliation in Europe," *International Security* 8 (Winter 1983–84); and Barry R. Posen, "Crisis Stability and Conventional Arms Control," *Daedalus* 120 (Winter 1991).

[58] The concept of differentiation is implicit in the distinction between qualitative and quantitative arms control, with the former relying on differentiation. This concept lies at the core of modern arms control theory; see, for example, Thomas C. Schelling, "What Went Wrong with Arms Control," *Foreign Affairs* 64 (Winter 1985–86).

In contrast, when offense and defense are not differentiated, a country buying forces to protect its territory can only choose forces that reduce its adversary's ability to defend. Signaling becomes much harder and riskier, because pure security seekers and greedy states will buy the same types of forces.

This stock of hypotheses has been supplemented by Van Evera, who adds hypotheses on how offense advantage fuels preventive war and encourages styles of diplomacy that increase the probability of war. Offense advantage heightens the significance of shifts in power, which increases incentives for preventive war. States are more likely to use fait accompli tactics when offense has the advantage because winning disputes is more important when security is scarce, which encourages states to overlook negotiable compromises. States negotiate less and less successfully, because offense advantage makes it more important that agreements be carefully balanced, which makes negotiations more difficult, and because offense advantage increases the advantages of violating agreements, which makes agreements riskier. In addition, offense advantage makes states more secretive, since information about military forces can increase their vulnerability. Secrecy in turn increases the probability of war by fueling miscalculations of military capabilities and of states' interests.[59]

The deductive strength of this body of offense-defense hypotheses has gone largely unchallenged, but recent work has questioned the relationship between offense advantage and the frequency of war. Because the risks of war could be greater for the attacker when offense has the advantage, potential attackers should face countervailing pressures that make them more cautious, especially when considering large wars, which could sometimes make war less likely.[60]

Van Evera has performed the most extensive tests of offense-defense hypotheses, although even these are preliminary.[61] Focusing on Europe since 1798, he finds strong support for the theory's basic hypothesis: war is more likely when offense has (or is perceived to have) the advantage. Examining the First World War in detail, Van Evera finds sup-

[59] Van Evera (fn. 5), chap. 5.

[60] James D. Fearon, "Rationalist Explanations for War," *International Organization* 49 (Summer 1995), 402–3. And see the following papers prepared for the annual meeting of the International Studies Association, Chicago, February 1995: Fearon, "The Offense-Defense Balance and War since 1648"; and Charles Glaser and Chaim Kaufmann, "Inspecting the Foundations of Offense-Defense Theory: Can They Bear the Weight?"

[61] Van Evera (fn. 5), chaps. 5, 6; and idem, "The Cult of the Offensive and the Origins of the First World War," *International Security* 9 (Summer 1984). See also Ted Hopf, "Polarity, the Offense-Defense Balance, and War," *American Political Science Review* 85 (June 1991); and Fearon (fn. 60, February 1995), who argues that the frequency of war in broad historical periods runs counter to standard offense-defense predictions.

port for the broad range of hypotheses about the dangers generated by offense advantage.[62] Many of these findings about the First World War have been challenged by Trachtenberg, who is especially critical of assertions about the role of offense dominance in fueling German expansion, and also casts doubt on the importance of first-strike and preventive incentives in bringing about the war.[63]

OFFENSE-DEFENSE THEORY AND THE DIVIDE WITHIN STRUCTURAL REALISM

It is surprising that Jervis's analysis is often not considered part of the structural-realist family, since his discussion of the security dilemma rests on the same fundamental assumptions as does structural realism—that states seek security and live under the condition of international anarchy.[64] In part, this is because Jervis did not explicitly frame his analysis in terms of realist theory. Nevertheless, by proposing a critical improvement,[65] Jervis's analysis poses a major challenge from within structural realism to Waltz's widely accepted version of the theory, which in turn transforms the standard predictions of structural realism.[66]

This improvement is to shift the focus of the theory from power to military capability, specifically to the ability to carry out military missions. Focusing on military missions is the preferable approach because a state's ability to achieve its goals depends on its ability to use military force effectively, that is, to accomplish the military missions that are necessary to achieve security and possibly nonsecurity goals. For example, a state's security depends on the probability that its forces can deter, and if necessary defeat, an adversary's offensive. The decision to focus on military capabilities essentially requires bringing in offense-defense variables, because it is these variables in combination with power, not power alone, that influence a country's ability to perform military missions.[67]

[62] See also Jack L. Snyder, "Perceptions of the Security Dilemma in 1914," in Robert Jervis et al., *Psychology and Deterrence* (Baltimore: Johns Hopkins University Press, 1985).

[63] Marc Trachtenberg, *History and Strategy* (Princeton: Princeton University Press, 1991), chap. 2, esp. 64–72. See also David Kaiser, *Politics and War: European Conflict from Philip II to Hitler* (Cambridge: Harvard University Press, 1990), 324; and idem, "Deterrence or National Interest? Reflections on the Origins of War," *Orbis* 30 (Spring 1986); David Stevenson, "Militarization and Diplomacy in Europe before 1914," *International Security* 22 (Summer 1997).

[64] This slightly overstates the similarity, since Waltz (fn. 4, 1979), for example, assumes that states seek at least security but may have other goals as well (p. 126), while Jervis's formulation assumes that states are pure security seekers. This difference is not problematic, however.

[65] Although "Cooperation under the Security Dilemma" precedes *Theory of International Politics* by a year, much of Waltz's argument is available in "Theory of International Relations," in Fred Greenstein and Nelson Polsby, eds., *The Handbook of Political Science* (Reading, Mass: Addison-Wesley, 1975). Waltz (fn. 4, 1979) makes only passing reference to the security dilemma (pp. 186–87).

[66] See Glaser (fn. 5), which presents additional reasons for modification; and Van Evera (fn. 5).

[67] Jervis (fn. 1) does not overlook power; he is explicit that both power and offense-defense variables matter (p. 187).

Focusing on military mission capabilities identifies possibilities overlooked and/or contradicted by theories that focus solely on power to explain state behavior. Most generally, although anarchy remains a constant, variation in the offense-defense variables leads to variation in the extent to which states should compete or cooperate and in the probability of war. There are many more specific differences. For example, small (weak) countries may be able to defend themselves effectively against large (powerful) countries if the offense-defense balance strongly favors defense, as it does in a world of advanced nuclear weapons states. If offense and defense are differentiable, states should often find that significant military cooperation is feasible. These predictions and many others run counter to standard power-based structural realism.

As disagreements between structural realists have become more sharply defined, the labels "offensive realists" and "defensive realists" have come to be used to distinguish analysts who favor the standard, competitive predictions from those who believe that structural realism predicts greater variation in countries' behavior.[68] At the heart of the disagreement is whether to focus on power or on military capabilities and, therefore, on offense-defense variables. Since they focus on power, offensive realists do not address whether offense generally has an advantage, but they do conclude that competitive policies flow from their power-based formulation of structural realism. Defensive realists are commonly said to believe that security is plentiful, because defense has the advantage. This, however, is not a central claim of analysts who focus on offense-defense variables, and in the end its validity hinges on empirical assessments of the offense-defense balance. For this reason I have suggested the alternative label of "contingent realism."[69]

TWO ADDITIONAL VARIABLES: GREED AND UNIT-LEVEL KNOWLEDGE OF MOTIVES

In addition to the two offense-defense variables that Jervis highlights, there are two additional variables that influence the magnitude of the security dilemma: the extent of the adversary's greed and the extent of the adversary's unit-level knowledge about the state's motives, in particular, knowledge gleaned by studying the inner workings of the state

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[68] See, for example, Snyder (fn. 11), who uses "aggressive" instead of "offensive" (pp. 10–13); and Sean M. Lynn-Jones and Steven E. Miller, "Preface," in Michael E. Brown, Lynn-Jones, and Miller, eds., *The Perils of Anarchy* (Cambridge: MIT Press, 1995), xi.

[69] See Glaser (fn. 5).

and its leaders. These are not structural variables and therefore, quite appropriately, do not play a central role in Jervis's discussion of the security dilemma. Considering these variables is also valuable because it helps us place the security dilemma within still broader debates over international relations theory.

GREED

In a world of pure security seekers, the security dilemma helps solve a basic puzzle—that even when states have compatible, benign goals, there is competition and conflict. In a world with one or more greedy states, the puzzle largely disappears: the incompatibility of states' goals provides a straightforward explanation for competition and conflict.[70]

The security dilemma does not become unimportant in a world with greedy states, however, because greedy states can also be insecure.[71] This said, it is also true that when a state knows that its adversary is greedy, maintaining adequate military capabilities becomes more important and being sensitive to the adversary's insecurity becomes less important. Furthermore, the importance of the security dilemma both for explaining and for avoiding international conflict depends on how greedy one's adversary is: all else being equal, the security dilemma is of less significance when the state's adversary is greedier.

The importance of greedy states has been the focus of recent work that argues that structural realism exaggerates the importance of the security dilemma by trying to explain international politics primarily in terms of the interaction between states that seek only security. Schweller argues that this "status quo bias" leaves neorealism unable to explain "most great-power behavior in modern history." According to Schweller, making realist theory more effective requires broadening its assumptions about states' motives to include at least some states that are interested in nonsecurity expansion, that is, that are greedy.[72] As I explain below, Schweller's conclusions are somewhat exaggerated, because he believes incorrectly that greedy states rob the security dilemma of all explanatory value. Nevertheless, his basic point is sound: differences in

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[70] Another basic puzzle still exists, however: why states—security seekers as well as greedy states—do not compromise instead of incurring the cost of fighting; see Fearon (fn. 60, Summer 1995).

[71] For related points, see Robert Jervis, "Arms Control, Stability, and Causes of War," *Political Science Quarterly* 108 (Summer 1993), 244–45. Randall L. Schweller argues otherwise, holding that when a greedy state exists there is no security dilemma; see Schweller, "Neorealism's Status-Quo Bias: What Security Dilemma?" *Security Studies* 5 (Spring 1996).

[72] Schweller (fn. 71), quote at 106. Disagreement about the relative importance of greed and insecurity is long standing. For a comparison of the contending formulations offered by realists, see, for example, Arnold Wolfers, *Discord and Collaboration: Essays on International Politics* (Baltimore: Johns Hopkins University Press, 1962), esp. 83–84.

states' goals matter because they can lead states to choose different policies; a security seeker will sometimes choose cooperation when, under the same conditions, a greedy state will choose competition. The standard structural-realist analysis obscures this point by mistakenly predicting that in general security seekers will pursue competitive policies. By contrast, defensive/contingent realism suggests the importance of motives by explaining that under a range of conditions security seekers should find cooperation to be their preferred policy and, therefore, that in these cases competition may reflect motives beyond security.

Given that the explanatory power of the security dilemma decreases when adversaries are greedier, the policy prescriptions that follow from imagining conflict driven by the security dilemma become at best less helpful and at worst potentially disastrous. For example, arms control will tend to be riskier because it requires forgoing the opportunity to communicate resolve by competing. In addition to this risk, unilateral restraint designed to signal the state's security motives becomes still more dangerous, since a greedy adversary may be more likely to exploit its military advantages.[73] Unilateral defense—building defense instead of offense—is more likely to weaken deterrence, because greedier states are more likely to conclude that the defender's lack of a retaliatory offensive option makes the risks of war acceptable.[74]

Although the security dilemma becomes less important in a world with greedy states, offense-defense variables still play a role in explaining war. When focusing on security seekers, the most interesting security-dilemma explanations concern how offense advantage increases mutual insecurity and thereby creates conflicts of interest. In contrast, when focusing on greedy states, offense-defense variables are most important for explaining the benefits of war. At least according to the standard argument, offense advantage still increases that probability of war, but in this instance because the prospects of winning are greater and/or because its costs are lower, which makes deterring greedy states harder.

UNIT-LEVEL KNOWLEDGE OF THE STATE'S MOTIVES

The second variable to be considered is the adversary's knowledge of the state's motives. The security dilemma is driven by the adversary's uncertainty about whether the state is in fact motivated purely by secu-

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[73] Restraint may not be ill-advised, however, since for a greedy insecure adversary the reduction in its insecurity could still offset the reduction in the state's military capabilities. Assessing the net effect requires more specific assumptions and a detailed model of interaction. By contrast, unilateral concessions are always misguided when one is facing a secure greedy state, as described by the deterrence model.

[74] On the deterrent value of counteroffensive capabilities, see fn. 57.

rity concerns. If the adversary were certain that it faced a pure security seeker, then the state would face a greatly reduced security dilemma.[75] The adversary would understand that military buildups reflected the state's insecurity rather than its greed. And military advantages would be far less threatening, since the adversary would know that the state did not want to attack. As a result, in contrast to the predictions of the security dilemma, arming and gaining military advantages would usually increase the state's security, not reduce it, and at worst would waste money.

A key assumption of structural realism guarantees, in combination with the security dilemma, that states will be at least somewhat uncertain about others' motives. The theory posits a world in which states do not rely on the internal characteristics of other states—for example, their type of political or economic system—to divine their motives. Instead, states interpret their adversaries' actions to infer their motives. The security dilemma, however, can prevent adversaries from acting in ways that would entirely clarify their motives. As discussed above, when states face a security dilemma, many of the policies that would provide necessary military capabilities will provide ambiguous information about their motives. For example, when offense and defense are not entirely differentiated, the military policies adopted by a pure security seeker might also be taken by an adversary that was motivated partly by greed; and, when offense has a large advantage, pure security seekers may be unable to afford defensive forces and strategies. Under these conditions, reducing uncertainty would require states to deploy forces that are militarily inadequate, since this is their only option for signaling benign motives. States will often conclude that these policies are more dangerous than alternatives that do not reduce uncertainty about their motives but that do provide better military capabilities.

If, however, states can rely on sources of information beyond those that structural realism allows, they may be able to reduce uncertainty further and thereby mitigate the security dilemma. The result can be a shift to more cooperative policies. Consider the argument that democracies are believed not to have greedy motives. If this were the case, then a military buildup launched by a democracy would be less alarming to its adversaries than a similar buildup launched by an authoritar-

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[75] Although at first glance this might seem to eliminate the security dilemma, this need not be the case. A state motivated entirely by security might choose war to increase its security; consequently, the state's insecurity should lead the adversary to fear it. Thus, eliminating the security dilemma would require that the adversary know not only that the state was a pure security seeker but also that the state did not fear it. Consequently, some points in this paragraph are overstated.

ian regime.[76] As a result, the democracy faces a less severe security dilemma;[77] and interactions between democracies could result in a democratic peace instead of intense competition, even when structural conditions create a severe security dilemma.

Unit-level information that mitigates the security dilemma can also support more competitive policies. This occurs when a state remains uncertain of an adversary's motives but believes unit-level information enables its adversary to appreciate that it is a pure security seeker. Competitive policies now become more desirable, since they do not suffer from a key shortcoming identified by the security dilemma; that is, they do not signal malign motives.

This line of argument plays a central role in the "deterrence model," which rejects the security dilemma completely, albeit implicitly, by assuming that the adversary knows the state is a pure security seeker.[78] Combining this with the assumption that the adversary is greedy, the deterrence model calls for highly competitive policies and warns against the dangers of restraint and concessions. For example, in describing the cold war competition between the United States and the Soviet Union, the deterrence model held that the Soviets were bent on expansion for entirely greedy reasons and knew that they had nothing to fear from the United States.

In short, examining a couple of key nonstructural variables highlights the fact that the role of the security dilemma depends on certain basic theoretical assumptions. Structural realism is built on assumptions that guarantee a central role for the security dilemma. If, however, we start from different assumptions about states' motives or the sources of information about state's motives, the importance and severity of the security dilemma can decrease.

[76] In this spirit, see Bruce Bueno de Mesquita and David Lalman, *War and Reason: Domestic and International Imperatives* (New Haven: Yale University Press, 1992), chap. 5. A different argument is that the openness that characterizes mature democracies results in domestic debate that cannot be manipulated simply to deceive an adversary, and therefore provides valuable information about motives. See Andrew Kydd, "Signaling and Structural Realism" (Manuscript 1996); and Kenneth A. Schultz, "Domestic Political Competition and Bargaining in International Crises" (Ph.D. diss., Stanford University, 1996). Schultz develops this type of argument for crisis interactions.

[77] Arguing along these lines is James D. Fearon, "Domestic Political Audiences and the Escalation of International Disputes," *American Political Science Review* 88 (September 1994), 587. If, however, a democracy believes this to be the case and it is not, then we get the kind of misperception described above: the democracy believes that it doe not face a security dilemma and therefore does not moderate its building; its adversary, not confident that the democracy is a pure security seeker, then responds to the buildup; and the democracy then increases its estimate of the adversary's greediness because it believes that its adversary knew that a response was unnecessary for maintaining its security.

[78] See Jervis (fn. 2), chap. 3; and Glaser (fn. 2).

CRITICISMS OF THE SECURITY DILEMMA AND
OFFENSE-DEFENSE THEORY

CRITIQUE 1: GREEDY STATES, NOT THE SECURITY DILEMMA,
    ARE THE PROBLEM

As discussed above, the importance of the security dilemma for both
explanation and prediction decreases when one or more of the major
powers is a greedy state. Critics offer empirical support for this theo-
retical observation—that the source of competition and war in many
key cases has been greed, not insecurity. Critics have argued that the
First World War, the cold war, certain major empires, and much al-
liance behavior is better explained by focusing on states' greed than on
their insecurity.

For example, Glynn criticizes as fundamentally flawed those analyses
of the First World War that focus on the security dilemma, offense ad-
vantage, German insecurity, and the arms races, arguing that they miss
the real problem—Germany's hegemonic ambitions. The military com-
petition could not be slowed by negotiation because its underlying
cause was "the very nature of German ambitions and of the German
regime."[79] Gray argues in the same spirit that "the political antagonism
that generates the objective need for alleviation via arms control . . . is
the very reason why arms control must fail."[80] This is not an isolated
view. Much of the rationale for competing with the Soviet Union dur-
ing the cold war rested on the basic argument that Soviet greed, not in-
security, was the root problem, a point captured in Jervis's description of
the deterrence model.[81] Schweller argues that the common occurrence
of greedy states explains the frequency of alliances in which states
bandwagon, that is, join together to change the status quo and share
the gains of expansion.[82]

Although resolving the empirical question raised by these criticisms
is obviously beyond the scope of this article, two general points deserve

[79] Patrick Glynn focuses on Van Evera's arguments; see Glynn, *Closing Pandora's Box: Arms Races,
Arms Control and the History of the Cold War* (New York: Basic Books, 1992), chap. 1, quote at 21. For
a more nuanced but at least partially sympathetic discussion, see Trachtenberg (fn. 63), chap. 2, esp.
49–57.

[80] Colin S. Gray, *Weapons Don't Make War* (Lawrence: University Press of Kansas, 1993), 174. A
similar theme runs through idem, *House of Cards: Why Arms Control Must Fail* (Ithaca, N.Y.: Cornell
University Press, 1992).

[81] Jervis (fn. 2), chap. 3. Douglas Seay reviews the debate among Soviet specialists; see Seay "What
Are the Soviets' Objectives in Their Foreign, Military, and Arms Control Policies?" in Lynn Eden and
Steven E. Miller, eds., *Nuclear Arguments* (Ithaca, N.Y.: Cornell University Press, 1989).

[82] Randall L. Schweller, "Bandwagoning for Profit: Bringing the Revisionist State Back In," *Inter-
national Security* 19 (Summer 1994).

to be emphasized. First, states may face irreducible uncertainty about adversaries' motives or adversaries may have mixed motives; either way, decision makers should strive for a robust mix of policies.[83] Second, as noted above, we should remember that security-dilemma and offense-defense arguments continue to apply in a world with greedy states, but also that the most penetrating and satisfying aspects of these arguments become less important.

CRITIQUE 2: THE SECURITY DILEMMA DOES NOT EXIST

THE SECURITY DILEMMA IS LOGICALLY FLAWED

Schweller argues that the logic of the security dilemma is internally flawed. Given the assumption of structural realism that states are pure security seekers, there should be no security dilemma, unless states are uncertain of other's motives/intentions. He argues that this is problematic, both because the security dilemma is then "*always* apparent, not real," and because conflicts of interest are then not genuine, but instead the result of misunderstanding, which "violates realism's most basic tenet."[84]

These criticisms are off the mark because they fail to appreciate the central role that uncertainty plays in structural realism. A core assumption of the theory is that under most conditions states will be at least somewhat uncertain about others' current motives: states are imagined as black boxes that provide no information about internal differences, except for the observable outputs of their international policy choices. As discussed above, these outputs will often not eliminate uncertainty about the adversary's motives. Therefore, from the perspective of a structural theory, this uncertainty is real, not imagined or the product of misunderstanding. As a result, the state faces a real security dilemma, for the reasons elaborated in the beginning sections of this article.

In the structural-realist formulation the combination of uncertainty and anarchy can generate incompatibility between pure security seekers. States' conflicting interests are genuine, but they reflect the incompatibility of means, not ends.[85]

SECURITY SEEKERS ARE UNINHIBITED BY THE SECURITY DILEMMA

Some structural realists argue that security seekers are power maximizers. Mearsheimer, for example, says that states "aim to maximize their relative power position. . . . The reason is simple: the greater the military

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[83] Jervis (fn. 2), 112–13; Glaser (fn. 2), 505–6.
[84] Schweller (fn. 71), 117–20, quotes at 117 and 118.
[85] Jervis (fn. 2) deals with precisely this issue (pp. 75–76).

advantage one has over other states, the more secure it is."[86] States maximize relative power "in order to maintain the means for self-defense."[87]

Although Mearsheimer does not mention the security dilemma, he is arguing implicitly that it does not exist or at least that it should never constrain states. Recall that one of the basic arguments of the security dilemma is that military advantages can be self-defeating: by making one's adversary more insecure, a military advantage can make the adversary harder to deter, with the net effect being a reduction in the state's security. States should maximize power as a general rule only if this self-defeating interaction never occurs. More specifically, in certain cases a country attempting to maximize its power would have to compete in offensive capabilities, thereby forgoing the alternative of accepting parity in defensive capabilities. A security seeker would usually be more secure accepting parity than engaging in this competition.

How are we to understand Mearsheimer's assertion? One possibility is that he simply rejects the logic of the security dilemma but has not spelled out why. A second possibility is that he is making an unstated empirical judgment—that states face conditions under which the cooperative possibilities identified by security-dilemma and offense-defense arguments are too dangerous. This might be the case when the security dilemma is severe, although it turns out that even then arms racing is not clearly a state's best option. In any event, Mearsheimer does not claim that states face such a severe condition but notes only that states "possess some offensive military capability." In short, Mearsheimer provides neither deductive nor empirical rationales for his claim.

THE SECURITY DILEMMA IS CONSTRUCTED (OR NOT) BY STATES

Wendt argues that "security dilemmas are not given by anarchy or nature";[88] a security dilemma "is a social structure composed of intersubjective understandings in which states are so distrustful that they make worst-case assumptions about each others' intentions."[89] Because the

[86] John J. Mearsheimer, "The False Promise of International Institutions," *International Security* 19 (Winter 1994–95), 11–12. Other prominent structural realists reject this position; see Waltz (fn. 4, 1979), 118, 126, 127.

[87] John J. Mearsheimer, "Back to the Future: Instability in Europe after the Cold War," *International Security* 15 (Summer 1990), 12. See also Fareed Zakaria, "Realism and Domestic Politics: A Review Essay," *International Security* 17 (Summer 1992), 190–96.

[88] Alexander Wendt, "Anarchy Is What States Make of It: The Social Construction of Power Politics," *International Organization* 46 (Spring 1992), quote at 407, and also 401–2; and idem, "Constructing International Politics," *International Security* 20 (Summer 1995), 77. For a very different constructivist critique, which focuses on the offense-defense balance, instead of the security dilemma, see Kier (fn. 10).

[89] Wendt (fn. 88, 1995), 73.

security dilemma is created by states' interactions, states can choose policies—for example, reassurance—that will avoid creating it. According to Wendt, realists overlook these possibilities for avoiding security dilemmas because they conceive of states' interests and security in ways that guarantee competition. For example, they assume states identify negatively with others' security and should act on the basis of worst-case assumptions. Because his objective is to clarify the logic of anarchy, Wendt frames his critique in terms of third-image structural theory; thus, his disagreement with structural realists is not rooted in disagreements over which level of analysis is most important.[90]

This disagreement between Wendt and realists may appear to be simply one of terminology: Wendt is using "security dilemma" to describe the results of states' interaction, whereas Jervis and the literature he has spawned use "security dilemma" to refer to a situation created by the material conditions facing states, such as geography and prevailing technology. By redefining well-established terminology, then, Wendt has created confusion.

More important are the significant substantive disagreements. First, Wendt exaggerates the extent to which structural realism calls for competitive policies and, therefore, the extent to which it leads to security dilemmas, as he defines them. As discussed above, although offensive realists believe the international system requires states to pursue competitive policies, the structural realists who place the greatest importance on the security dilemma—defensive/contingent realists—believe that under a range of conditions states should cooperate. Part of the problem is that the assumptions that Wendt assigns to realism are themselves either controversial or logically flawed. Instead of seeing states identifying negatively with the security of others, realists envision states as egoists and therefore as indifferent to others' security, except as it directly influences their own security.[91] The security dilemma then explains why egoists might see a positive interaction; that is, all else being equal, increases in other states' security increase one's own security. Wendt's claim that realists believe states should base their policies on worst-case assumptions is also wrong (even though this position is commonly attributed to realists and some offensive realists might try to defend it). The core logic of the security dilemma makes clear that

[90] Wendt (fn. 88, 1992), 396; see also idem (fn. 88, 1995), 72.

[91] This said, some realists have argued otherwise. See, for example, Joseph M. Grieco, *Cooperation among Nations* (Ithaca, N.Y.: Cornell University Press, 1990). This is because they have conflated means and ends. See Charles L. Glaser, "Correspondence: When Cumulative Relative Gains Matter," *International Security* 21 (Spring 1997). See also Robert Powell, "Guns, Butter, and Anarchy," *American Political Science Review* 87 (March 1993), 127.

worst-case analysis can be self-defeating, since forces that are larger or more threatening than necessary can lead to reduced military capabilities and/or negative spirals in beliefs about adversaries' motives. In fact, Wendt's description of how states facing uncertainty about the motives of others should interact—his alternative to the realist prescription—is essentially the signaling behavior envisioned by realists who emphasize the role of the security dilemma.[92]

Second, in arguing that states can change "the intersubjective knowledge that constitutes the system" by changing their practices, Wendt implicitly rejects the existence of (standard/material) security dilemmas.[93] The problem is that a security dilemma can sometimes make it too risky for states to signal their benign motives. (As I have stressed, however, this is not always true, since the risks depend on the severity of the security dilemma, which varies.) Because Wendt believes the security dilemma is the creation of states, he overlooks the constraints it can impose and consequently is too optimistic about the general ability of states to change their practices and use signaling to avoid competitive relations.[94] As I have already explained, states may be able to overcome these constraints by relying on unit-level knowledge of others' motives. This, however, is not what Wendt is arguing, since his critique is cast in terms of structural/third-image analysis.

CRITIQUE 3: OFFENSE-DEFENSE THEORY IS FLAWED

INDISTINGUISHABILITY OF OFFENSIVE AND DEFENSIVE WEAPONS
    UNDERMINES THE THEORY

Critics argue that offense and defense cannot be distinguished since virtually all weapons can be used for both offense and defense. Therefore, they continue, the balance cannot be measured and the policy guidance of offense-defense theory cannot be implemented.[95] Mearsheimer argues, for example, that determining the offense-defense balance is problematic because "it is very difficult to distinguish between offensive and defensive weapons."[96]

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[92] Wendt (fn. 88, 1992), 404–5.

[93] Ibid., 407.

[94] See especially Wendt (fn. 88, 1992), 406. Wendt turns to the existence of predatory (greedy) states to explain how anarchy becomes a competitive realm (pp. 407–9). However, the weaker structural-realist assumption of uncertainty about motives, in combination with a security dilemma, is sufficient.

[95] This section draws on Kaufmann and Glaser (fn. 25), which addresses a number of additional criticisms, as does Sean M. Lynn-Jones, "Offense-Defense Theory and Its Critics," *Security Studies* 4 (Summer 1995). Jack S. Levy provides some of the early criticisms; see Levy, "The Offensive/Defensive Balance of Military Technology: A Theoretical and Historical Analysis," *International Studies Quarterly* 28 (June 1984).

[96] Mearsheimer (fn. 86), 23.

This line of criticism, however, reflects two fundamental misunderstandings. First, whether offense and defense are distinguishable does not affect our ability to assess the offense-defense balance. To access the offense-defense balance, we start by assuming that attacker and defender deploy the weapons that best enable them to achieve their respective missions. This may or may not result in the attacker and defender deploying some of the same types of weapons. Either way, given these forces, measuring the balance then requires performing a kind of net assessment—analyzing the ability of the attacker's forces to defeat the defender's forces. Adjusting the size of the attacker's forces to determine how large they must be to succeed provides the information that determines the cost ratio of offense to defense.[97]

Second, in focusing on whether a weapon can be used by both the attacker and the defender, critics misunderstand distinguishability; they should focus instead on how the weapon influences the offense-defense balance. For example, Huntington concludes that "weapons may be usefully differentiated in a variety of ways, but the offense/defense distinction is not one of them."[98] Consequently, states cannot signal by forgoing certain types of weapons, and they cannot use qualitative arms control to shift the offense-defense balance. These critics are mistaken, however, because distinguishability does not depend on whether both attacker and defender would deploy the weapon. Distinguishability should be defined by comparative net assessment, that is, by comparing the offense-defense balance when both sides deploy the weapon with the balance when neither deploys it. If deploying the weapon shifts the balance toward offense (defense), then the weapon can be classified as offensive (defensive), and states will be able to implement the policy prescriptions that depend on the distinguishability of offense and defense.

PERCEPTIONS OF THE BALANCE, NOT THE BALANCE, ARE KEY

Critics argue that perceptions of the offense-defense, not the balance itself, determine states' decisions for war and arms racing. Even assuming that states have the knowledge and skill required to measure the offense-defense balance accurately, political, psychological, or other biases can still generate serious misperceptions. Consequently, the "objective" offense-defense balance is not useful for predicting states' behavior.[99]

[97] For a different response, see also Lynn-Jones (fn. 95), 674–77.

[98] Samuel P. Huntington, "U.S. Defense Strategy: The Strategic Innovations of the Reagan Years," in Joseph Kruzel, ed., *American Defense Annual, 1987–1988* (Lexington, Mass.: Lexington Books, 1987), 36. See also Gray (fn. 80, 1993), 28.

[99] See, for example, Levy (fn. 95), 222. For related discussion of this criticism, see Lynn-Jones (fn. 95), 677–82.

Although this criticism is valid, it does not reduce the value of offense-defense theory. Like all structural theories, offense-defense theory must recognize that the effects of structure are mediated through states' perceptions, whether accurate or not. Nevertheless, offense-defense theory is necessary to enable us to predict states' behavior given their actual perception of the offense-defense balance. In addition, when misperceptions do occur, the offense-defense balance remains necessary as a baseline against which to assess the seriousness of the misperceptions and their consequences.

RESEARCH AGENDA

This article should leave little doubt that "Cooperation under the Security Dilemma" has both established the importance of key arguments about the security dilemma and offense-defense theory and spawned a large and impressive literature. What work remains to be done? I suggest beginning at least with the following areas.

GREED VERSUS SECURITY

From a variety of angles, we have seen that the security dilemma and offense-defense arguments are less important and insightful when greedy states, especially secure greedy states, are at the heart of international conflict. Research that helps determine the frequency and intensity of greedy states would therefore be quite valuable. In addition, concern about greedy states poses a basic challenge for theory building: a reasonable goal would be to develop theories that deal adequately with the mixture and varying intensity of states' motives—greed as well as security.

EMPIRICAL TESTING OF OFFENSE-DEFENSE HYPOTHESES

Given their importance, the full range of offense-defense hypotheses warrants further empirical testing. Valuable contributions can be made by research (1) that examines whether states assess their security in terms of power or military capability, (2) that explores how the balance should be measured, and (3) that systematically applies these measures to specific cases.

CAUTION VERSUS COMPETITION

As further empirical testing proceeds, the time is ripe to explore more thoroughly the deductive strength of offense-defense hypotheses. Why do countervailing considerations not moderate the impact of offense

advantage? For example, if offense advantage means that attackers as well as defenders could lose big in a major war, then why does offense advantage not sometimes make states more cautious and war less likely?[100] If arms races become more dangerous, then why do states not take greater risks to stop them? And so on.

RATIONAL VERSUS BIASED STATES

The explanatory and predictive value of the security dilemma depends on the extent to which states suffer from psychological, bureaucratic, and political biases. Maybe most important, the theory's optimistic prediction that relations will be cooperative when the security dilemma is mild depends on states accurately perceiving the conditions they face. If states are inclined to exaggerate the advantages of offense, to ignore that others face a security dilemma, or to overlook others' restraint, then the opportunity created by objective conditions will be squandered. Although a substantial amount of research has focused on misperceptions, answers to critical questions remain wide open. How important have misperceptions been in fueling competition and war? Are states likely to be better at avoiding flawed policies in the future?

Given these topics, the already large body of work that builds on Jervis's security-dilemma and offense-defense arguments is likely to continue to grow in size and importance.

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[100] See fn. 60 for work that has already raised this possibility.